# Periscope.

## *Brain.*

### 1901, Vol. 24, Autumn.

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1. *Certain Mental Changes that Accompany Visceral Disease.*—Henry Head analyzes the various mental changes accompanying visceral diseases, as based on investigations of patients suffering from pulmonary, cardiac or abdominal disease, embracing observations made in the Victoria Park Hospital, and the London Hospital since 1893. The underlying etiology of such changes is to be looked for either (1) In a disturbed activity of the heart altering the circulation of the brain, or changing the character of the blood supplying it; as an example of this we find the delirium that accompanies a failing heart or profound vascular degeneration; or (2) when an organ is attacked which in health produces a substance necessary for the normal metabolic activity of the tissue; thus the destruction of the thyroid gland causes the peculiar hebetude of myxedema, due to the absence of some constituent manufactured by that gland. (3) When an excreting organ is attacked, leading to retention of toxic agencies in the blood, as we find in kidney and liver troubles. (4) The resistance of the nervous system may be so lowered by visceral disease that a poison, such as alcohol, for instance, may produce mental changes different from those that will be produced by the same poison under different conditions. (5) Finally, visceral disease may, by lowering the resistance of the body to disease, call out dormant tendencies manifesting themselves as active mental disease. Besides, the reflected pains of visceral diseases are accompanied by changes in consciousness. The various changes that may accompany visceral disease fall into the following groups: (1) Hallucinations: (a) of vision; (b) of hearing; (c) of smell. (2) Moods; (a) sense of ill-being; (b) exaltation. (3) Suspicion.

As regards hallucinations of vision the commonest form is that of a figure, usually draped, and not clothed, "wrapped in a shawl," as the patients declare, "wrapped in a sheet," the limbs are usually not visible. Sometimes the hallucination consists of a face only; in one case the patient saw a hand and arm come round the door of the ward that stood open flush with her bed. The hallucinations are in all cases white, black or gray, never colored or even normally tinted. The face is white, the lips colorless, thus giving rise to the figure or face of a corpse. In this he finds the difference between the hallucinations of the sane to those of the insane, for in the latter the hallucinations of vision either resemble some normal subject or are highly colored, although the other kind of hallucinations may also be present. The figure or face is always single; it is usually stationary, unaccompanied by any sound, not appearing during the bright light of the day, but usually when the patient awakes from sleep. The patients are at first frightened, but become gradually accustomed to the phenomena, and insist they won't "be fooled"; at times they are accompanied by depression, and considered as a bad omen of some approaching misfortune.

The hallucinations of hearing are also of a simple type; they are never articulate voices, thus differing from the commonest form of hallucination of hearing in the insane. They assume the form of tapping, of ringing bells, low whistling, treading of footsteps, or breathing and inarticulate whispering. The intensity of these hallucinations is very variable; they also occur usually at night, and when the patient is surrounded by perfect quietude, for external noise tends to prevent the appearance of the hallucinations. The feeling—tone—of the patient caused by these hallucinations is usually unpleasant, and the latter are quite persistent. The investigation of hallucinations of smell is very difficult, as you cannot easily prove that a smell of which the patient complains has no external cause. These hallucinations are invariably unpleasant, and may be divided into the following groups: (a) Sulphuretted hydrogen group ("drains," "rotten fish," "eggs," or "cheese"); (b) burning group ("burning bricks," "burning rags"); (c) "earthy smell," or "smell of grass"; (d) smell of gas; and (e) fecal (only one case). Like other hallucinations these are prevented by strong external scents. They frequently appear in relation to food, thus causing refusal of food by the patient.

(2) Moods.—(a) Sense of ill-being. The change of mood in these patients comes in paroxysms, without reason, the patient seeking solitude, away from public gatherings, which become repulsive to him; he usually has an intense desire to weep; when spoken to he completely breaks down, nor can he tolerate music or anything that usually tends to cheer up a healthy man when in despair. This is accompanied by a vague idea of impending ill. He visualizes his home through dark colors. Still this mood is seldom followed by an idea of suicide; on the contrary the patient usually spurns the idea of self-destruction. (b) Exaltation. Quite to the contrary is the feeling of exaltation, a feeling of returning physical strength; the illusion is, however, rapidly dispelled by the failure to accomplish feats of strength not commensurate with the real strength.

(3) Suspicion. The mood of depression frequently repeated or lasting too long merges finally into a condition of suspicion, which, however, is more of an impulse than a formed delusion, for the patient at all times recognizes that it has no basis of truth; this suspicion is also easily dispelled by appropriate explanations.

In analyzing the causes that underlie the above-described phenomena, the author ascribes the most prominent rôle to the presence of reflected visceral pains accompanied by superficial tenderness. (An attached chart of 154 cases, embracing those of aortic disease, aneurism and dilated aorta, mitral disease, combined aortic and mitral etc., as well as of tubercular phthisis, fibrosis of lungs, etc., is well worthy of the closest study at this juncture). Thus the condition of depression is not an intellectual sense induced by thought and worry to the patient's mind, but an alteration of the feeling-tone in the direction of ill-being; and associated with a sense that it lies outside reason; as he describes it, it is an obsession dominating his rational life and producing feelings that he cannot describe. He has a feeling that he has somehow lost control of his mental processes but that his reasoning powers are still intact. This feeling of ill-being is not an emotion proper, for it is not accompanied by projection, as in anger, hate, love and the like; and in the absence of a suitable English psychological term he proposes to call this state "mood", to indicate a state of mind in which consciousness is dominated by feeling-tone, but where the resulting state is not projected. To produce such a mood the reflected visceral pains must not only be of considerable intensity or duration, but great frequency and involve a number of segmental areas. Then some segmental areas—as those of the abdomen—are more likely to be associated with this sense of ill-being, while pain and tenderness over the upper thoracic area must be relatively severer and of longer duration before it becomes associated with depression. Instances of cardiac pulmonary trouble are here brought forward to substantiate this assertion. The feeling of exaltation spoken of before is not a delusion of grandeur, but a belief in the returned youth and strength, thus becoming the exact converse of that sense of ill-being which made up the depressed mood. This comes as a reaction after diminution of pain. The duration of this state is usually short, and it must not be confounded with the well-known "spes phthisica," a more permanent mental condition of a different origin and nature, for this hopefulness, this condition of rescience, is based simply on ignorance of the increasing gravity of the signs of the disease, and is easily dispelled by a short stay in the hospital. As distinct from this exaltation there occur attacks of excitement, when the patients burst out into paroxysms of anger or uproarious excitement, as instances in cases of aortic disease. It would thus seem that the exalted sense of well-being to which persons with visceral disease are liable, may arise from many different causes. (a) It may be the direct contrast to a mood of ill-being induced by visceral pain. (b) Those who suffer from visceral pain are liable to an accentuation of the normal waves of well- and ill-being that apparently stand in connection with the feeling-tone connected with visceral activity. (c) The apparent exaltation may be due to ignorance on the part of the patient of the gravity of his condition. To this group belong many of the cases of so-called "spes phthisica." (d) Patients suffering from disease of the aortic valves are liable to attacks of excitement apparently of vascular origin. The state of suspicion usually takes its origin from the state of ill-being or depression; with them there is also associated a sense of physical worthlessness, but no feeling of moral unworthiness, and thus it fundamentally differs from the commonest form of suspicion to the insane, who always thinks that those around him believe he has committed some act either against religion, law or social custom; again the patient with suspicion born out of a sense of ill-being of visceral origin is without difficulty convinced of the suspicion being without foundation, nor is he quite sure of the suspicion; a simple denial satisfies him. In its causeless or inconsequent onset, and to the sense of loss of control by which it is accompanied, it closely resembles the state of ill-being out of which it springs. Hallucinations mostly appear in cases of depression, except those of vision, which are not always contemporaneous with an attack of depression. (Reference is here made to an article by the author in "Brain," 1894, p. 436, touching upon the anatomical causes that underlie the reflected pain in the head and tenderness of the scalp in diseases of the organs of the chest and the abdomen.)

In attempting to bring out the causes that determine the special kinds of hallucinations—of sound, sight and smell—and taking as an example headache of the reflected visceral type, he propounds several theoretical considerations: the presence of pain of the reflected type and tenderness over the temporal area, whatever its origin, will tend to produce an hallucination of smell. Widespread scalp tenderness unaccompanied by marked local headache, is unlikely to be associated with the occurrence of an hallucination. The occurrence of hallucinations of vision and hearing on the position of the headache or the area of the scalp tenderness.

(3) Changes in attention and memory. Memory for the remote past is usually not affected except in those extreme cases where the patients become slightly demented. If a man has a special facility based on some particular development of memory, this aptitude is the first to be weakened. Then memory may also be weakened in other directions, patient may forget things seen or heard—a more serious condition, but there is no loss of due appreciation of time and of locality as in the insane. A profound loss of attention has also been observed in many suffering from diseases of heart and lungs. These changes cannot be ascribed to reflected pain only, but with this is usually associated acute wasting and fever. Pain sensations do not cause a diminution in the power of attention only by the fact that they enter into consciousness as pain sensations, but by changes in feeling-tone with which that pain is associated. In visceral disease it is not only from lack of attention that memory is diminished, but from the lowered vitality of the nervous system produced by continuous fever or profound wasting. Besides, states in which feeling-tone or motion occupy consciousness are extremely poor in memory images. In a similar manner few can reproduce the sensation of a toothache, although every object in the dentist's room can still be pictured as clearly as on the day the tooth was drawn. The article concludes with an extensive appendix of cases illustrative of the various mental changes accompanying visceral diseases.

2. *Contribution to Study of Cortical Sensory Areas.*—In this article, which is rather too technical to be summarized, the authors present "a view in line with that of Bastian, in that it accords a sensory function to both the Rolandic and to the parietal regions, and recognizes the gyrus fornicatus as a possible sensory seat."

3. *A Case of Chronic Internal Pachymeningitis of the Spinal Cord.*—J. M. Carke presents an interesting case of extensive internal pachymeningitis, absolutely limited to the spinal cord, without any involvement of the intracranial membranes. The patient, a man of twenty-five, a shepherd, free from syphilis or gonorrhea, was suddenly taken sick eighteen months previous to admission to the hospital, with severe pains and loss of power in the legs, extending—the pains—into the ankles, knee-joints, wrists, elbows and shoulders; pains worse at night and after exertion; occasionally incontinence of urine; some tremor in the limbs, and some fibrillary twitching of the muscles; unable to stand, and when assisted just shuffled along a few steps. Speech and answer slow, but appearance and well-being good; over ventral area rough systolic murmur. Cranial nerves unaffected; arms weak but not paralyzed. Legs weak, muscles somewhat wasted, toes extended, dorsiflexion of foot feeble, flexion weaker than extension. Some lordosis and stiffness in movement of lower dorsal lumbar por-

tion of spine. Abdominal and cremasteric reflexes absent, plantar present; knee-jerks exaggerated, ankle clonus absent; elbow- and wrist-jerks present. Retention of urine with overflow, incontinence. Severe girdle pains. Later on wasting of the muscles of leg and bedsores. Hyperesthesia at the level of the umbilicus, over front of thighs and legs, and over calves. Anesthesia over dorsum of the feet and outer aspect of legs; also, in patches, over the trunk. The temperature sense defective or lost in places over the lower extremities, also some deficiency in tactile sensations. In a week or so loss of power in both lower extremities which were rigidly contracted and flexed at all joints, further wasting of the muscles with no reaction to faradic current. Pains and girdle sensation very severe. Then tingling and numbness in the right arm, entire loss of power; the other arm involved. The patient during the last week became absolutely helpless, unable to move himself; legs rigid, wasted, drawn up, right arm flaccid, left arm very feeble, turning head and neck very feebly. Incontinence of urine and feces. Abdomen distended, tympanitic from paralysis of abdominal muscles. Rapid formation of bedsores over every bony point on which there was the least pressure; sacrum, trochanters, belly, great toes, etc. Death from septicemia.

Post-mortem: skull normal, cranial dura healthy, pia-arachnoid a little opaque, cerebro-spinal fluid in excess, cerebral hemispheres small but healthy, but ventricle much dilated, ependyma somewhat thickened. Cerebellum and pons healthy. But in the cord remarkable changes were found. In its whole length it was enclosed in a tough fibrous sheath, consisting of thickened dura mater and within this a thick layer of looser connective tissue; all this firmly adherent to the cord. The thickening lessened gradually at the upper part of the cervical region and in the dorsal and lumbar. The cord itself appeared small and compressed. Sections of the cord showed under the microscope that the mass consisted of the greatly thickened dura, and of closely applied layers of dense fibrous tissue. Next to the cord was a very vascular layer, looser and less dense in texture; beneath this the pia, thickened and with vessels injested. Both roots of nerves were compressed, and largely destroyed. The posterior root ganglia atrophied. the ganglia cells destroyed. In the cord itself there was a diffuse degeneration of quite irregular distribution due to increase of interstitial neuroglial tissue and atrophy of nerve fibers. In the gray matter there was a diminution in the number of fine, large medullated fibers normally present. There was a marked general increase of the interstitial tissue both in the gray and in the white matter. The blood vessels also showed changes in that the walls were markedly thickened, the chief change being in the inner coat with marked endarteritis.

Although syphilis presents similar changes, it usually affects a limited portion of the cord, while here the whole of the cord was implicated. The changes themselves seemed to be secondary, due to compression. There was no evidence of a primary myelitis. The negative history as regards syphilis and the absence of other syphilitic lesions in the body speak against the syphilitic origin of the disease. In the course of the malady it is worthy to note that the pains and weakness in the legs came on rather gradually, remaining almost stationary after reaching a certain stage, but two months before death these symptoms grew rapidly worse, and the subsequent progress of the illness was very rapid. The extraordinary formation of bedsores was a remarkable feature of the disease.

4. *Degenerations in hemiplegia.*—This is a study based on the autopsies of five cases of hemiplegia and aphasia with the following conclusions: (1) In man the pyramid frequently gives off a ventro-lateral tract. This tract may arise in the pons, medulla or first cervical segment in the cord; it lies in the region of Helweg's "Dreikantenbahn," and is best marked in the first two cervical segments; occasionally it can be traced down to the lumbo-sacral region. (2) It confirms in the main, the researches of Hoche on the "accessory fillet" in man, *i.e.*, that it leaves the pyramid in the upper pontine region, descends in the middle fillet and supplies certain of the cranial motor muscles. (3) "Pick's bundle" is probably an ascending tract which arises from the crossed pyramid at the decussation, and forms at least part of the pyramidal supply of the nucleus ambiguus; it is fairly frequently degenerated in cases of hemiplegia, and is not of such rare occurrence as Pick supposed.

5. *On the study of true tumors of the optic nerve.*—At the autopsy of a case that presented during life a complexity of eye symptoms (especially pronounced atrophy of both optic nerves) in combination with mental symptoms, such as hallucinations, restlessness, etc., due to an injury five weeks before to the left temporal region sustained by striking violently against a broad wooden peg in a stable,—the optic nerves were found markedly gray in color, although not diminished in size; microscopically beside numerous round cells, peculiarly-shaped bodies of varying size furnished with long processes; the sheath of the optic nerve considerably thickened. There were on one hand masses of round cells, and on the other typical or angular cells of myxoma with often extraordinarily-long spirally twisted processes thus marking the tumor as a myxo-sarcoma. The special points in the case are summarized thus: Tumor of the optic nerve was not diagnosed, the symptoms not being clear enough, and exophthalmos (which, according to Braunschweig, is "never" absent) not being present. The early development of visual defects is a factor of importance in the diagnosis of such cases, even where palpation gives no evidence of a tumor and exophthalmia has not developed. The etiological impetus as well as the rapid course of the disease are also matters for consideration. The author is compelled to accept the origin of the tumor at first in the chiasma, thence as spreading in both nerves and into the tract. As regards the mental symptoms, the psychoses are essentially based on hallucinations of sight, probably due to the pressure of the growth. The epileptic attacks that occurred two days previous to and on the day of patient's death, are ascribed to a disturbance of the state of circulation in the dural sheath of the optic nerves compressed from within outwards.

6. *A case of cerebral and cerebellar tumors.*—At the autopsy of this case (a child, six years old, who fell, striking the occiput against a curb stone, some five weeks previous; this was followed by "fits," and later on by complete blindness, "cerebellar" gait, double optic neuritis, etc.) tuberculous tumors were found in the left parietal lobe, in the superior temporal convolution and in the left lateral lobe of the cerebellum. Microscopically there were degenerations of fine collateral fibers in the corona radiata of the parietal lobe of the left hemisphere, in the corpus callosum at the level of the middle of the third ventricle, the fasciculus subcallosus in the left hemisphere, the temporo-thalamic fibers, the pyramidal tracts (the lower limb area), in the accessory fillet; extensive degenerative processes were also found in the optic tracts, the posterior commissure, the posterior

longitudinal bundle. In the spinal cord in addition to the pyramidal degeneration both columns of Burdach were affected. In the cerebellum both flocculi were attacked, the uvulva, the inferior vermis as well as the fleece fibers around the dentate nuclei of the cerebellum. Both superior cerebellar peduncles were degenerated, especially on the left side.

The following conclusions are drawn from the case: (1) With destructive lesion of the cortex of the Rolandic area (a) the association fibers of the homolateral hemisphere undergo extensive degeneration; (b) the fibers of the corpus callosum connecting the two areas are of medium size and do not turn down into the capsule of the opposite hemisphere; (c) the pyramidal fibers give off collaterals to their course through the corona radiata; (d) the fibers from the upper third of the Rolandic area run through about the junction of the middle posterior third of the hinder limb of the internal capsule and for the most part to the outer side of the crusta of the peduncle. and maintain their relative position in passing through the pons; (2) No fibers are given off by the optic tract to the infundibular region or to the corpus Luysii, in fact no fibers leave the tract before it reaches the level of the lower border of external geniculate body. This is contrary to the views of Bechterew, Stilling and Kölliker; (3) although there was widespread destruction to the left lobe of the cerebellum there was no descending cerebellar degeneration to the spinal cord. This is contrary to the opinion of several authorities, *e.g.*, Marchi and Biedl; but inasmuch as Deiters' nucleus was intact the present observation supports the views of Risien Russell, and Ferrier and Turner; (4) the accessory fillet is a descending tract contrary to the opinion of Bechterew, Schlesinger, and in support of the view of Redlich and Hoche. The "accessory fillet" may be simply fibers of the pyramidal tract leaving to gain cranial nerve nuclei.

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## *Neurologisches Centralblatt.*

(1902, Vol. 21, January 1, No. 1.)

1. Initial Symptoms of Paranoia. A. PICK.
2. Dietetic Treatment of Epilepsy. D. SCHAEFER.
3. Studies in Voltaisation. A. ZANIETOWSKI.

1. *Initial Symptoms of Paranoia.*—This is merely a short controversial article calling into question a few of the conclusions reached by Head in his article on "Certain mental changes that accompany visceral diseases," an abstract of which appears in this issue of the JOURNAL.

2. *Dietary Treatment of Epilepsy.*—A short note in favor of a strict dietetic treatment of epilepsy paying particular attention to a diet which is free from chlorine combinations as first laid down by Toulouse and Richet. Brief summaries of the results are given in three cases. Balint's diet, consisting of 1½ liters of milk, 40-50 gms. of fresh butter, three eggs, 300-400 gms. of bread, was employed. The attacks steadily diminished in number and the psychical condition was markedly improved. A return to the ordinary diet was accompanied by a return of the epileptic attacks.

3. *Studies in Electrophysiology.*—The author here gives a short summary of his results obtained by the use of the Voltmeter instead of the Galvanometer as a reliable test for electrical excitability. Such an instrument he believes to be better for the measuring of viability of nerve and muscle action than the use of the constant current and